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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,444	01/27/2004	Yorimichi Dairoku	1035-492	8698
23117	7590	12/03/2010	EXAMINER	
NIXON & VANDERHYE, PC			HUSON, MONICA ANNE	
901 NORTH GLEBE ROAD, 11TH FLOOR			ART UNIT	PAPER NUMBER
ARLINGTON, VA 22203			1742	
MAIL DATE		DELIVERY MODE		
12/03/2010		PAPER		

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/764,444

Filing Date: January 27, 2004

Appellant(s): DAIROKU ET AL.

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Eric Sinn  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 17 September 2010 appealing from the  
Office action mailed 17 March 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:  
1-3, 6-22

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

6960275	Vesley et al.	11-2005
6022610	Phan et al.	02-2000
4840851	Golander et al.	06-1989

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 6-11, 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golander et al. (U.S. Patent 4,840,851), in view of Vesley et al. (U.S. Patent 6,960,275).

Regarding Claims 1, 19, and 20-21, Golander et al., hereafter "Golander," show that it is known to carry out a method of manufacturing a water-absorbing shaped body (Column 8, line 40), comprising the step of polymerizing an aqueous solution without the presence of a thickening agent and including a photo polymerization initiator, a radical polymerization initiator and a water-soluble ethylenically unsaturated monomer containing an amount of acrylic acid by radiating light onto the aqueous solution (Abstract, Claim 28 (radical initiator); Column 2, lines 62-64; Column 7, lines 11-26; Column 8, line 65; Column 9, lines 7-9; Example 1; note that Golander does not use a thickening agent), shaping the polymerized aqueous solution, and drying the water-absorbing shaped body obtained after polymerization (Example 6; Column 7, lines 13-33). Golander does not specifically show at least 50 mol% (Claim 1), at least 80 mol% (Claim 19), or at least 95 mol% (Claim 20) however he does show using acrylic acid in equimolar amounts with another reactant in Example 7. Therefore, it is interpreted that the amounts of acrylic acid are recognized as variable, and where the general conditions of a claim are disclosed by the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (See MPEP 2144.05 (II)(A)). It

would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use any appropriate mol% of acrylic acid in Golander's molding process in order to most effectively carry out the polymerization reaction. Further, Golander does not show applying heat after the light radiation. Vesley et al., hereafter "Vesley," show that it is known to carry out a method of making an absorbent article wherein polymerization is furthered by applying heat after the light is radiated intermittently (Column 5, lines 16-18, 52-53, especially note that Vesley teaches a curing method of application of radiation or application of heat at lines 16-18, and Vesley teaches that a subsequent curing (e.g., after first application of radiation) can take place by a second energy source (e.g., heat) at lines 52-53). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's heat after the light radiation step in Golander in order to perfect the polymerization and fix the article's physical characteristics.

Regarding Claim 2, Golander shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the aqueous solution is polymerized on a surface of another base material (Column 2, lines 55-57).

Regarding Claim 3, Golander shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the aqueous solution before the light is radiated includes a cross linking agent in advance (Column 3, lines 50-57).

Regarding Claim 6, Golander shows the process as claimed as discussed in the rejection of Claim 1 above, wherein the aqueous solution is shaped into a film shape (Example 6).

Regarding Claims 7, 18, and 22, Golander shows that it is known to carry out a method of manufacturing a water absorbing shaped body (Column 8, line 40), comprising the step of a first polymerization step of radiating light onto an aqueous solution not containing a thickening agent and including a photo polymerization initiator and a water-soluble ethylenically unsaturated monomer, so as to polymerize a part of the water soluble ethylenically unsaturated monomer to thicken the aqueous solution (Column 7, lines 10-17; note that Golander does not use a thickening agent), and a second step of radiating light onto the aqueous solution having a shape so that a rest of

the water soluble ethylenically unsaturated monomer is polymerized, the aqueous solution having been shaped and including the polymer as a part thereof (Column 7, lines 18-26). Golander does not show an intermediate shaping step. Vesley shows that it is known to carry out a method of forming an absorbent article including a first polymerization step, a shaping step of stopping radiation of light and shaping the article into a desired shape, and a final polymerization step (Figure 1, element 114=first curing, space between 114 and 126=shaping step after curing is stopped, 126=second curing; Column 5, lines 41-65; Column 8, lines 21-49). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's intermediate shaping step during Golander's molding process in order to allow the article to be shaped without the curing conditions' influence. Golander does not specifically show at least 50 mol%, however he does show using acrylic acid in equimolar amounts with another reactant in Example 7. Therefore, it is interpreted that where the general conditions of a claim are disclosed by the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (See MPEP 2144.05 (II)(A)). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use any appropriate mol% of acrylic acid in Golander's molding process in order to most effectively carry out the polymerization reaction.

Regarding Claim 8, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, including a method wherein the aqueous solution before the light is radiated includes a cross linking agent in advance (Column 3, lines 50-57), meeting applicant's claim.

Regarding Claim 9, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show a shaping step. Vesley shows that it is known to carry out a method of forming an absorbent article including a first polymerization step, a shaping step of stopping radiation of light and shaping the article into a desired shape, and a second polymerization step of the article which is being shaped (Figure 1, element 104, 114, 126; Column 5, lines 41-65; Column 8, lines 21-49). It would have been *prima facie* obvious to one of ordinary skill in the art at the time

the invention was made to use Vesley's intermediate shaping step during Goldander's molding process in order to impart the desired physical details to the molded article.

Regarding Claim 10, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, including a method wherein the aqueous solution further includes a radical polymerization initiator other than the photo polymerization initiator (Claim 28), meeting applicant's claim.

Regarding Claim 11, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show applying heat after the light radiation. Vesley shows that it is known to carry out a method of making an absorbent article wherein polymerization is furthered by applying heat after the light is radiated (Column 5, lines 16-18, 52-53). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's heat after the light radiation step in Golander in order to perfect the polymerization and fix the article's physical characteristics.

Regarding Claim 13, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show a shaping step. Vesley shows that it is known to carry out a method wherein the shaping step is performed right after the first polymerization step (Figure 1, element 104, 114). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's shaping step after the first polymerization step of Golander's molding method in order to form desired details into the thickened semi-polymerized article.

Regarding Claim 14, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show a continuous belt. Vesley shows that it is known to carry out a method wherein the first polymerization step and the shaping step are performed on a continuous belt (Figure 1, element 106). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's continuous belt during Golander's molding process because continuous processes are more efficient and produce more articles per time frame.

Regarding Claim 15, Golander shows the process as claimed as discussed in the rejection of Claim 7 above, wherein the aqueous solution is shaped into a film shape (Example 6), meeting applicant's claim.

Regarding Claims 16 and 17, Golander shows the process as claimed as discussed in the rejection of Claims 6 and 15, respectively, but he does not show a porous article. Vesley shows that it is known to carry out a method wherein the water absorbing shaped body is permeable (Column 6, lines 55-67; Column 7, lines 1-9; permeable~porous). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Vesley's permeable article as that during Golander's molding process in order to allow passage of desired fluids through the water absorbing body.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Golander and Vesley, further in view of Phan et al. (U.S. Patent 6,022,610). Golander shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show a fiber substrate. Phan et al., hereafter "Phan," teaches a method for adding a water absorbent polymer congruent in shape to a capillary substrate (fiber base material) (abstract and col. 1, lines 33-39; 44-51 and col. 4, lines 10-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a capillary substrate (fiber base material), as taught by Phan in the method of Golander because the capillary substrate (fiber base material) will have increased absorbent qualities.

#### **(10) Response to Argument**

(Ground 1: 1) Appelleant contends that Golander is not applicable because he does not show the claimed method of shaping a partially crosslinked gel. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive because shaping a partially crosslinked *gel* (*emphasis added*) is not claimed. As noted above, it is maintained that Golander suggests using the same polymers as claimed."

Appellant contends that Vesley does not show initial radiation, stopping the radiation, shaping the solution, and final irradiation and cure. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive, as seen by the following notes about Figure 1, along with the disclosure at Column 5, lines 16-56 and Column 7, lines 61-65. Vesley's elements 114 provide the initial radiation step. Then, relative to the composition itself, once the composition moves beyond (to the left, clockwise movement) elements 114, radiation is stopped, i.e. there is no more radiation being applied to the composition. While the composition is being transported on the roll, and at nip 124, shaping is being imparted to the composition (see also, Column 8, lines 22-49). (Note that a shape change is not necessarily claimed.) Then, Vesley's element 126 provides radiation to the composition again, i.e. second curing/polymerization. Based on this analysis of Vesley, it is maintained that he suggests the claimed steps for which his disclosure is applied."

(Ground 1: 2) Appellant contends that Golander and Vesley do not render the claims obvious because they do not show the claimed mol percentages. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive because, as noted in the body of rejection, these specific amounts are being held as variants which would have been obvious to one of ordinary skill in the art."

Appellant further remarks that "since 50mol% of an acrylic acid...is not obvious, it follows that a further higher range...is also non-obvious." This is not persuasive because there has been no evidence supplied by applicant to demonstrate the non-obviousness of any mol percentages.

(Ground 1: 3) Appellant contends that Golander's radial intiator is not applicable because he shows different materials. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive because, as noted above, it is maintained that Golander suggests using the same polymers as claimed. It is noted that Vesley was not cited to show a free radical polymerization initiator."

Appellant contends that Golander and Vesley do not show applying heat after light radiation. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive because at Column 5, lines 16-18 and 52-55,

Vesley shows that element 126 can apply heat to the composition after light has been radiated by element 114. It is maintained that Golander and Vesley would reasonably combine to suggest this feature of the instant invention."

Appellant further contends that Vesley does not show a second polymerization. This is not persuasive because Vesley discusses a second polymerization in his disclosure, for example, at Column 5, lines 52-65.

Appellant contends that the heat source in "applying heat after the light is radiated" is intended and implicit to be the heat of polymerization instead of heat applied from an external source, though there is no description in the specification with regard to this point. This is not persuasive because there is no evidence that this concept was part of and supported by the originally-filed application.

(Ground 1: 4) Appellant contends that Golander and Vesley do not suggest drying the water-absorbing shaped body. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive, as it is interpreted that open-air drying implicitly takes place between Vesley's elements 126 and when the composition is wound onto roll 120."

(Ground 1: 5) Arguments in this section appear to be a summarization of the arguments in sections (1)-(4). These arguments are nonpersuasive as addressed above.

(Ground 2) Appellant contends that there is no indication that the combination of teachings of Golander, Vesley, and Phan would work. This argument has already been addressed as nonpersuasive in the Final Office Action: "This is not persuasive, as all references are concerned with absorbent polymers, there is a reasonable expectation of success. It is maintained that Phan shows the fiber substrate, and that Golander, Vesley, and Phan would reasonably combine to suggest the claimed invention."

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,  
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